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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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02/12/2001

Michael C. Murphy

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06/04/2004

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BOSTON, MA 02108

EXAMINER

NGUYEN, DUNG X

ART UNIT

PAPER NUMBER

2631

2

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/781,459

Applicant(s)

MURPHY, MICHAEL C.

Examiner

Dung X Nguyen

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 72 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10, 11, 17, 18, 20, 28, 31, 33, 35, 37, 38, 53 - 55, 63, 66, 68, and 70 is/are rejected.
- 7) ☒ Claim(s) 1 - 9, 12 - 16, 19, 21 - 27, 30, 32, 34, 36, 39 - 52, 56 - 62, 65, 67, 69, 71, and 72 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: on line 15, what does “more even” mean? Appropriate correction is required.
2. Claim 6 is objected to because of the following informalities: on line 14, what does “more even” mean? Appropriate correction is required.
3. Claim 10 is objected to because of the following informalities: on line 11, “can be” should be changed to “is”. Appropriate correction is required.
4. Claim 13 is objected to because of the following informalities: on line 4, what does it mean by “a different portion of the output signal”? Appropriate correction is required.
5. Claim 17 is objected to because of the following informalities: on line 6, “can be” should be changed to “is”, on line 12, “it” should be changed to its proper term, on lines 13 and 14, what does it mean by “a different portion of the output signal”? On line 10, “each of” should be deleted, and on line 15, “the output connections of” should be deleted. Appropriate correction is required.
6. Claim 18 is objected to because of the following informalities: on line 20, “it” should be changed to its proper term, also on lines 20 and 21, see claim 13, on line 22, “the output connections of” should be deleted. Appropriate correction is required.
7. Claim 20 is objected to because of the following informalities: on line 10, “can be” should be changed to “is”, on line 12, “it” should be changed to its proper term. Appropriate correction is required.

Art Unit: 2631

8. Claim 30 is objected to because of the following informalities: on line 6, “its” should be changed to its proper term. Appropriate correction is required.
9. Claim 31 is objected to because of the following informalities: on line 6, “can be” should be changed to “is”. Appropriate correction is required.
10. Claim 38 is objected to because of the following informalities: on line 16, what does it mean by “more even”? Appropriate correction is required.
11. Claim 44 is objected to because of the following informalities: on line 6 and on line 9, respectively, “its” should be changed to its proper term. Appropriate correction is required.
12. Claim 47 is objected to because of the following informalities: on line 16, “trapped” should be changed to “tapped transformer”. Appropriate correction is required.
13. Claim 53 is objected to because of the following informalities: on line 6, “can be” should be changed to “is”, and also on lines 13 & 14, and line 17, see claim 13. Appropriate correction is required.
14. Claim 54 is objected to because of the following informalities: on lines 23 and 24, see claim 13. Appropriate correction is required.
15. Claim 57 is objected to because of the following informalities: on lines 12 and 13, what does it mean by “more even”? Appropriate correction is required.
16. Claim 58 is objected to because of the following informalities: on line 19, after a, shouldn’t “resistor,” be inserted? Appropriate correction is required.

Claim Rejections - 35 USC § 102

17. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2631

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

18. **Claims 28, 29, 63, and 64 are rejected** under 35 U.S.C. 102(e) as being anticipated by Bult et al. (US patent # 6,684,065 B2).

Regarding claim 28, Bult et al. teaches (figure 31_g):

- Two inputs (nodes M3, M4, column 49, lines 24 – 28);
- Two outputs (Id3, Id4, column 48, lines 42 – 45); and
- Circuitry for causing substantially equal current to flow in each of the two outputs even if the loads on them vary (column 48, lines 55 – 61).

Regarding claim 29, Bult et al. further teaches (figure 31_g) that wherein the circuitry for causing equal current to flow in each of the outputs including similar transistors (M, M2) connected to similar control voltages (V_{i1} , V_{i2}).

Regarding claim 63, the limitations are analyzed in the same manner set forth as claim 28.

Regarding claim 64, the limitations are analyzed in the same manner set forth as claim 29.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2631

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. **Claim 10 is rejected** under 35 U.S.C. 103(a) as being unpatentable over Dreyer et al. (US patent # 6,327,309 B1), further in view of Nowak et al. (US patent # 5,796,598).

Regarding claim 10, Dreyer et al. teaches (figure 2):

- A pair (42, 44) of input connections for receiving an input signal from a transformer coil; also for connecting across the center tapped winding so as to receive the differential voltage across the winding (column 2, lines 39 – 46 and column 8, lines 1 – 4);
- Receiver (36) for amplifying the input signal and producing an amplifying input signal;
- Transmitter (34) including a pair of output pins (42, 44);
- Pair of output pins (42, 44) from which the output signal is connected across the transformer coil, including a first pair for driving a center tapped transformer and a second pair (60, 62) for driving VCC (column 2, lines 34 – 46).

Dreyer et al. differs from the instant claimed invention that it does not show the transmitter circuitry including one or more output transistors for driving an output signal; and a second pair for driving a bridge transformer.

However, Nowak et al. teaches (figure 2) that a pair for driving a bridge transformer (column 3, line 35).

Art Unit: 2631

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Dreyer et al. and Nowak et al. to fulfill the limitations required by the instant claimed invention for improving the transceiver of the communication system.

21. **Claims 11 and 17 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Dreyer et al. (US patent # 6,327,309 B1), Nowak et al. (US patent # 5,796,598), and further in view of Lau (US patent # 5,896,417).

Regarding claim 11, as followed by the limitations analyzed in claim 10, Dreyer et al. and Nowak et al. differ from the instant claimed invention that they do not construct its transceiver as a single monolithic circuit.

However, Lau discloses that its invention being designed as a single monolithic circuit (column 4, lines 22 – 24). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Dreyer et al., Nowak et al., and Lau to fulfill the limitations required by the instant claimed invention for improving the standard of the transceiver of the communication system.

Regarding claim 17, as followed by the same limitations set forth as the limitations analyzed in claim 10, Dreyer et al. and Nowak et al. differ from the instant claimed invention that they do not show the first pair of output connections has isolation circuitry for electrically isolating the first pair of output connections from the transmitter circuitry during a different flow of the output drive signals.

However, Lau discloses that a transmit isolation transformer for isolating the transmitter circuitry and associated electronic equipment from other such electronic equipment connected elsewhere to the cable (column 3, lines 45 - 55). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Dreyer et al. and Lau to fulfill the limitations required by the instant claimed invention for improving the transceiver of the communication system.

Art Unit: 2631

22. **Claims 18 and 20 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Dreyer et al. (US patent # 6,327,309 B1), Nowak et al. (US patent # 5,796,598), Lau (US patent # 5,896,417), and further in view of Henderson et al. (US patent # 6,628,165 B1).

Regarding claim 18, as followed by the same limitations set forth as the limitations analyzed in claim 17, Dreyer et al., Nowak et al., and Lau differ from the instant claimed invention that they do not show a feedback circuitry for using a comparison between the amplified input signal and a desired signal level to control the amplitude of the output signal.

However, Henderson et al. teaches (figure 1) that a feedback circuitry (23, 21, 26, 24, 20, 22, 28, 30, 32, 40) for using a comparison between the input signal (column 1, lines 29 – 30) and the desired level (column 7, lines 52 – 53) to control the amplitude of the output signal (column 4, lines 38 – 42).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Dreyer et al., Nowak et al., Lau, and Henderson et al. to fulfill the limitations required by the instant claimed invention for improving the transceiver of the communication system.

Regarding claim 20, the limitations are analyzed in the same manner set forth as claim 18.

23. **Claim 31 is rejected** under 35 U.S.C. 103(a) as being unpatentable over Dreyer et al. (US patent # 6,327,309 B1), Nowak et al. (US patent # 5,796,598), and further in view of Bult et al. (US patent # 6,684,065 B2) and Hintz et al. (US patent # 6,731,098 B1).

Regarding claim 31, as followed by the same limitations set forth as the limitations analyzed in claim 10, Dreyer et al. and Nowak et al. differ from the instant claimed invention that they do not show a circuitry for turning off current flow in output transistor for at least a given time period when the current measurement exceeds a given level.

While Bult et al. teaches that a measurement of current flow across output transistors (column 45, line 62 to column 46, line 15).

And Hintz et al. teaches that a circuit for turning off current flow in output transistor for at least a given time period when the current measurement exceed a given level (column 2, lines 40 – 54, column 3, lines 27 – 30, and column 6, lines 10 – 15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Dreyer et al., Nowak et al., Bult et al., and Hintz et al. to fulfill the limitations required by the instant claimed invention for improving the transceiver of the communication system.

24. **Claims 33, and 35 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Dreyer et al. (US patent # 6,327,309 B1), Nowak et al. (US patent # 5,796,598), Bult et al. (US patent # 6,684,065 B2), Hintz et al. (US patent # 6,731,098 B1), and further in view of Lau (US patent # 5,896,417).

Regarding claims 33 and 35, respectively, the limitations are analyzed in the same manner set forth as the combination of claims 11 and 31.

25. **Claim 37 is rejected** under 35 U.S.C. 103(a) as being unpatentable over under 35 U.S.C. 103(a) as being unpatentable over Dreyer et al. (US patent # 6,327,309 B1), Nowak et al. (US patent # 5,796,598), Bult et al. (US patent # 6,684,065 B2), Hintz et al. (US patent # 6,731,098 B1), and further in view of Boylan et al. (US patent # 6,249,447 B1).

Regarding claim 37, as followed by the same limitations set forth as the limitations analyzed in claim 35, Dreyer et al., Nowak et al., Lau, Bult et al., and Hintz et al. differ from the instant claimed invention that they do not show wherein the circuitry for producing a measurement including a sensing resistor in series with the current flowing through output transistor.

However, Boylan et al. discloses (figure 1) that a current sensing transformer (168) including resistor R_2 in series with the current flowing through output transistor (column 3, lines 3 – 11 and column 1, lines 29 – 31).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Dreyer et al., Nowak et al., Lau, Bult et al., Hintz et al., and Boylan et al. to fulfill the limitations required by the instant claimed invention for improving the transceiver of the communication system.

26. **Claim 53 is rejected** under 35 U.S.C. 103(a) as being unpatentable over Dreyer et al. (US patent # 6,327,309 B1), and further in view of Nowak et al. (US patent # 5,796,598) and Lau (US patent # 5,896,417).

Regarding claim 53, Dreyer et al. teaches (figure 2):

- A pair (42, 44) of input connections for receiving an input signal from a transformer coil; also for connecting across the center tapped winding so as to receive the differential voltage across the winding (column 2, lines 39 – 46 and column 8, lines 1 – 4);
- Receiver (36) for amplifying the input signal and producing an amplifying input signal;
- Transmitter (34) including a pair of output pins (42, 44);
- Pair of output pins (42, 44) from which the output signal is connected across the transformer coil, including a first pair for driving a center tapped transformer and a second pair (60, 62) for driving VCC (column 2, lines 34 – 46).

While Nowak et al. teaches (figure 2) that a pair for driving a bridge transformer (column 3, line 35).

And Lau discloses that a transmit isolation transformer for isolating the transmitter circuitry and associated electronic equipment from other such electronic equipment connected elsewhere to the cable (column 3, lines 45 - 55).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Dreyer et al., Nowak et al., and Lau, to fulfill the limitations required by the instant claimed invention for improving the transceiver of the communication system.

27. **Claim 54 is rejected** under 35 U.S.C. 103(a) as being unpatentable over Dreyer et al. (US patent # 6,327,309 B1), Nowak et al. (US patent # 5,796,598) and Lau (US patent # 5,896,417), and further in view of and Henderson et al. (US patent # 6,628,165 B1).

Regarding claim 54, as followed by the same limitations set forth as the limitations analyzed in claim 53, Dreyer et al., Nowak et al., and Lau differ from the instant claimed invention that they do not show of using a comparison between the amplified input signal and a desired signal level to control the amplitude of the output signal.

However, Henderson et al. teaches (figure 1) that a feedback circuitry (23, 21, 26, 24, 20, 22, 28, 30, 32, 40) for using a comparison between the input signal (column 1, lines 29 – 30) and the desired level (column 7, lines 52 – 53) to control the amplitude of the output signal (column 4, lines 38 – 42).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Dreyer et al., Nowak et al., Lau, and Henderson et al. to fulfill the limitations required by the instant claimed invention for improving the transceiver of the communication system.

Art Unit: 2631

28. **Claim 55 is rejected** under 35 U.S.C. 103(a) as being unpatentable over Dreyer et al. (US patent # 6,327,309 B1), and further in view of Lau (US patent # 5,896,417) and Henderson et al. (US patent # 6,628,165 B1).

Regarding claim 55, Dreyer et al. teaches (figure 2):

- A pair (42, 44) of input connections for receiving an input signal from a transformer coil; also for connecting across the center tapped winding so as to receive the differential voltage across the winding (column 2, lines 39 – 46 and column 8, lines 1 – 4);
- Receiver (36) for amplifying the input signal and producing an amplifying input signal;
- Transmitter (34) including a pair of output pins (42, 44);
- Pair of output pins (42, 44) from which the output signal is connected across the transformer coil, including a first pair for driving a center tapped transformer and a second pair (60, 62) for driving VCC (column 2, lines 34 – 46).

While Lau discloses that a transmit isolation transformer for isolating the transmitter circuitry and associated electronic equipment from other such electronic equipment connected elsewhere to the cable (column 3, lines 45 - 55).

And Henderson et al. teaches (figure 1) that a feedback circuitry (23, 21, 26, 24, 20, 22, 28, 30, 32, 40) for using a comparison between the input signal (column 1, lines 29 – 30) and the desired level (column 7, lines 52 – 53) to control the amplitude of the output signal (column 4, lines 38 – 42).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Dreyer et al., Lau, and Henderson et al. to fulfill the limitations required by the instant claimed invention for improving the transceiver of the communication system.

29. **Claim 66 is rejected** under 35 U.S.C. 103(a) as being unpatentable over Dreyer et al. (US patent # 6,327,309 B1), and further in view of Bult et al. (US patent # 6,684,065 B2) and Hintz et al. (US patent # 6,731,098 B1).

Regarding claim 66, as followed by the same limitations set forth as the limitations analyzed in claim 10, Dreyer et al. further teaches (figure 2) that the output signal to deliver through a pair of output connections to opposite sides of the transformer coil (column 2, lines 30 – 46.

While Bult et al. teaches that a measurement of current flow across output transistors (column 45, line 62 to column 46, line 15).

And Hintz et al. teaches that a circuit for turning off current flow in output transistor for at least a given time period when the current measurement exceed a given level (column 2, lines 40 – 54, column 3, lines 27 – 30, and column 6, lines 10 – 15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Dreyer et al., Henderson et al., and Hintz et al. to fulfill the limitations required by the instant claimed invention for improving the transceiver of the communication system.

30. **Claims 68 and 70 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Dreyer et al. (US patent # 6,327,309 B1), Bult et al. (US patent # 6,684,065 B2) and Hintz et al. (US patent # 6,731,098 B1), and further in view of Lau (US patent # 5,896,417).

Regarding claim 68, as followed by the same limitations set forth as the limitations analyzed in claim 66, Dreyer et al., Bult et al., and Hintz et al. differ from the instant claimed invention that they do not show wherein at least part of the transmitter is constructed as a single monolithic circuit, including at least part to the circuitry for substantially turning off are all on one semiconductor.

Art Unit: 2631

While Lau discloses that its invention being designed as a single monolithic circuit (column 4, lines 22 – 24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Dreyer et al., Bult et al., Hintz et al., and Lau to fulfill the limitations required by the instant claimed invention for improving the transceiver of the communication system.

Regarding claim 70, as followed by the same limitations set forth as the limitations analyzed in claim 66, Dreyer et al. further discloses (figure 2):

- The transmitter (34) is a part of a transceiver (Dreyer et al. shows both parts of transmitter and receiver in a figure);

The transceiver includes:

- A pair of input connections (42, 44), which receive an input from the transformer coil; and
- Receiver (32), which amplifies that input signal and producing an amplified input signal.

Allowable Subject Matter

31. **Claims 1, 6, 23, 38, 43, 47, and 58 would be allowable** if rewritten or amended to overcome the objection(s), set forth in this Office action.

32. **Claims 2 – 5, 7 – 9, 24 – 27, 30, 39 – 42, 44, 48 – 52, 57, and 59 – 62 would be allowable** if rewritten to overcome the rejection(s), set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

33. **Claims 12 – 16, 19, 21, 22, 32, 34, 36, 45, 46, 56, 65, 67, 69, 71, and 72 are objected to** as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

34. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Rofougaran et al. (US patent # 6,738,601 B1) discloses an adaptive radio transceiver with floating MOSFET capacitor.

Agah. (US patent # 6,370,187 B1) discloses an adaptive power dissipation for data communication system.

Mazer et al. (US patent # 6,356,582 B1) discloses a universal serial bus transceiver.

Janczark et al. (US patent # 6,175,195 B1) discloses a triac dimmable compact fluorescent lamp with dimming interface.

DeAndrea et al. (US patent # 5,796,781) discloses a data receiver having bias restoration.

Contact Information

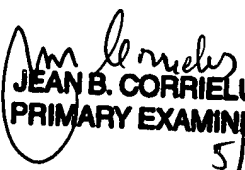
35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung X. Nguyen whose telephone number is (703) 305-4892. The examiner can normally be reached on Monday through Friday from 9:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Ghayour Mohammad H. can be reached on (703) 306-3034. The fax phone numbers for this group is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800.

DXN

May 20, 2004


JEAN B. CORRIELUS
PRIMARY EXAMINER
5/28/04